

# Recognizing Forms of Energy

## Where Can You Find Energy?

There is evidence of energy all around you. Energy is making things happen—warming things up, allowing things to grow, making things move, and so on. Energy is also “waiting” to be used. Candy bars on store shelves, gasoline in fuel tanks, and sleds perched at the tops of snow-covered hills all have the potential to bring about change when the time is right.

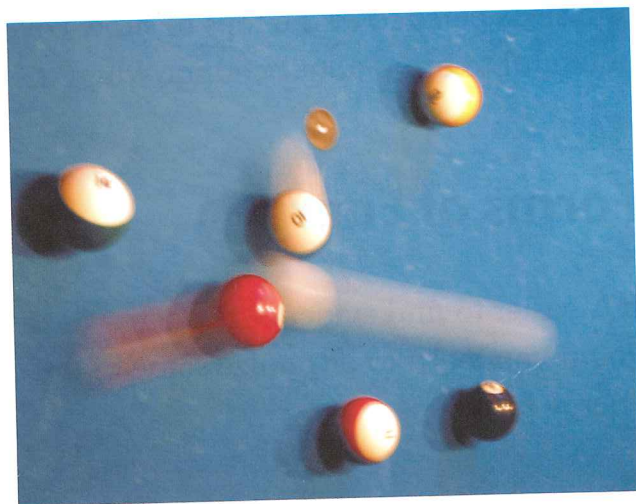
## Forms of Energy

It is easier to find evidence of energy in the world around you if you learn to recognize some of the different forms that energy takes.

## Motion Energy

Motion energy is the energy present in moving things, such as the wind, a racing car, or a soaring ball.

Objects that possess motion energy can make things happen: a swinging bat can make a ball soar, a tornado can toss a home, and a spinning drill can cut through metal.

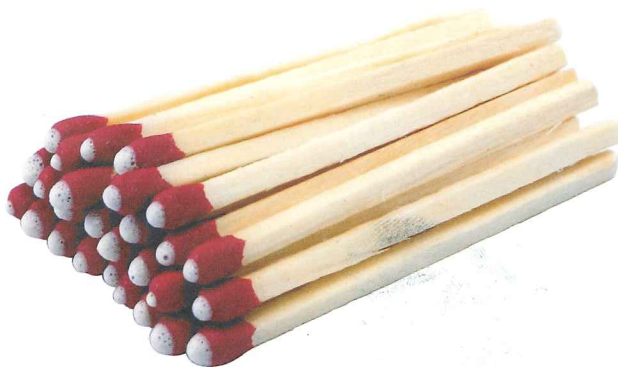
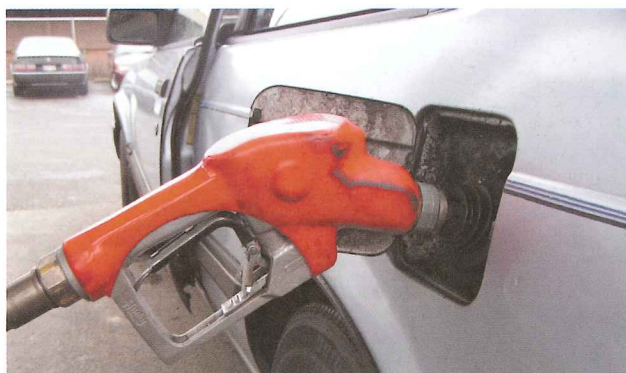




## Chemical Energy

Chemical energy is the energy stored in materials such as food, batteries, dynamite, and gasoline. The chemicals these materials contain determine how much chemical energy they store. Chemical energy can be used to make things happen. For example:

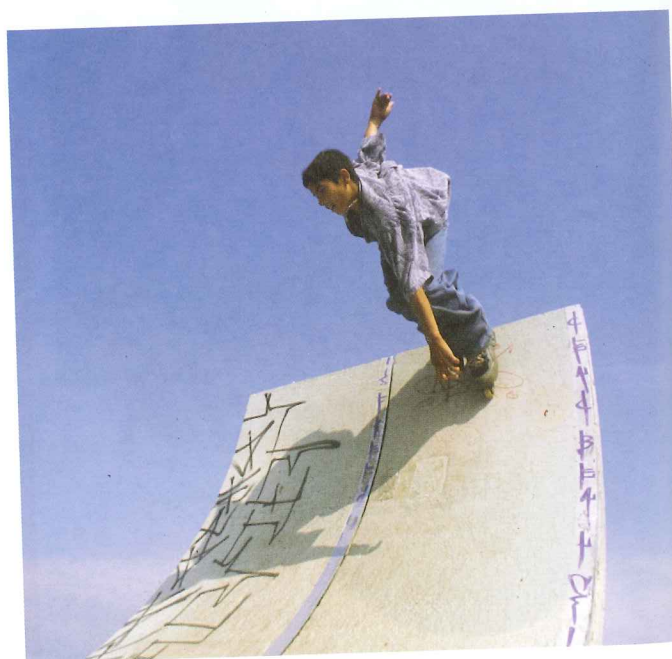
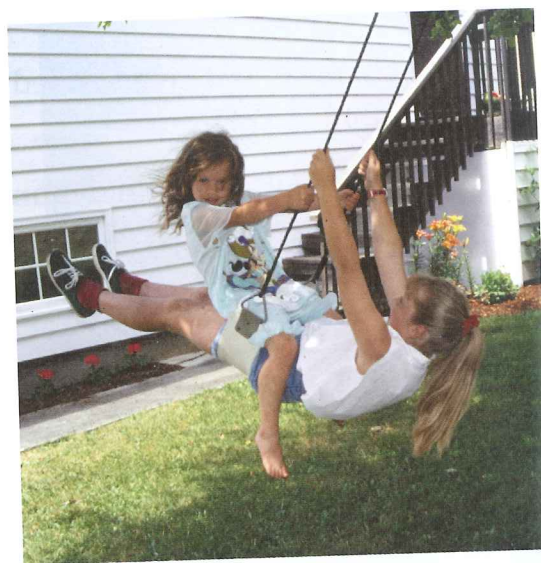
- The chemical energy in the food you eat gives you the energy to jump, think, grow, and do everything else you do.
- The chemical energy in gasoline gives cars the energy to move.
- The chemical energy provided by a battery allows a flashlight to shine.
- The chemical energy in dynamite gives it the power to blast through rock.



## Gravitational Energy

Gravitational energy is the energy stored in objects that are in a position to fall, such as the water at the top of a waterfall or a wagon at the top of a hill.

When objects fall, their gravitational energy is changed to other forms (usually energy of motion), making things happen—like moving you down a snow-covered mountain or up the next hill on a roller coaster.





## Elastic Energy

Elastic energy is the energy stored in stretchy objects when they are stretched or springy objects when they are compressed.

When a stretched rubber band or a compressed spring is released, its elastic energy is changed to other forms (usually energy of motion), making things happen. Elastic energy is what causes an arrow to fly or a gymnast to soar above a trampoline.





## Heat Energy

Heat energy is the energy a substance has as a result of its temperature. The higher an object's temperature, the more heat energy it has. We use the heat energy of objects every day to make things happen—to cook our food, brew our coffee, dry our clothes, and style our hair.



## Light Energy

Light energy is the energy carried by light rays. We depend on light energy every day to make things happen. Here are some of the ways we depend on light energy:

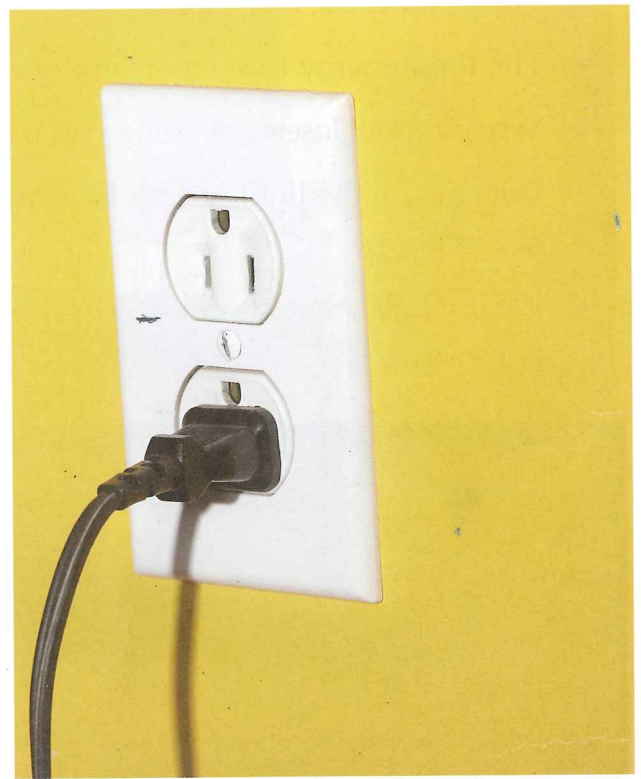
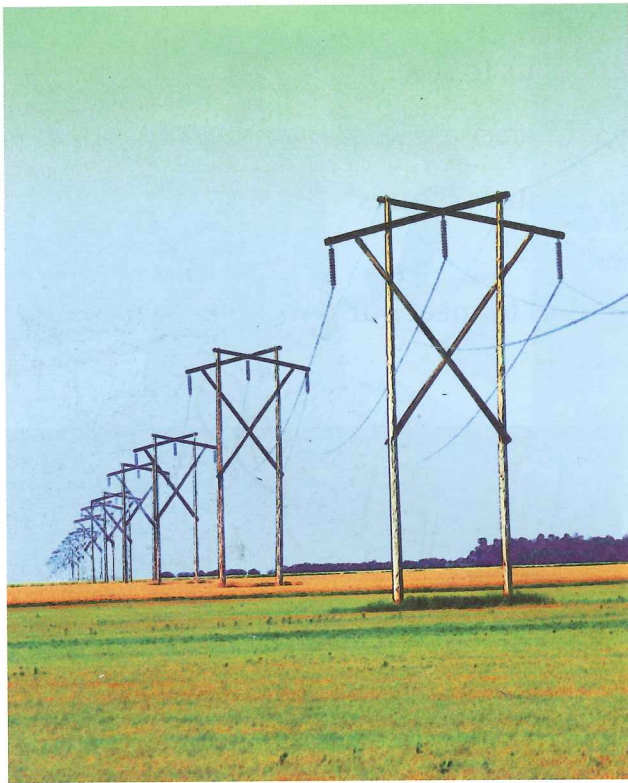
- Without light energy, there would be no life on Earth. Energy from the sun warms the Earth, keeping the temperature suitable for living things. Energy from the sun gives plants the energy to grow.
- The light energy that enters our eyes allows us to see.
- Very powerful lasers are used to cut metal into precise shapes.
- Doctors use the light energy in x-rays to create “pictures” of our bones.
- We use light energy collected by solar panels to meet our power needs.





## Electrical Energy

Electrical energy is the energy that electricity provides. The modern world runs on electrical energy. Think of how different your day would be if you couldn't depend on electrical energy to operate the machines you depend on—washers and dryers, televisions, refrigerators, lights, microwave ovens, computers and lots more!

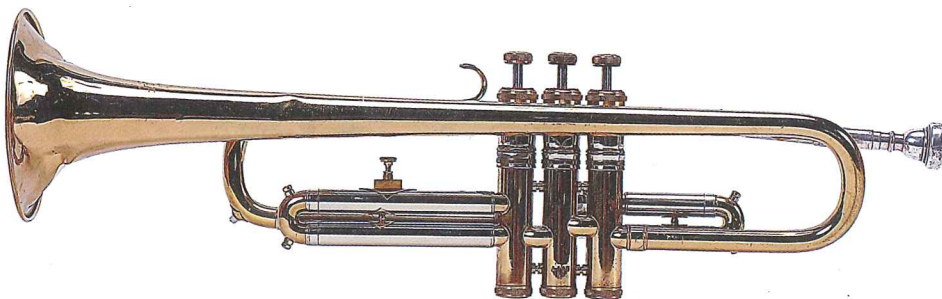
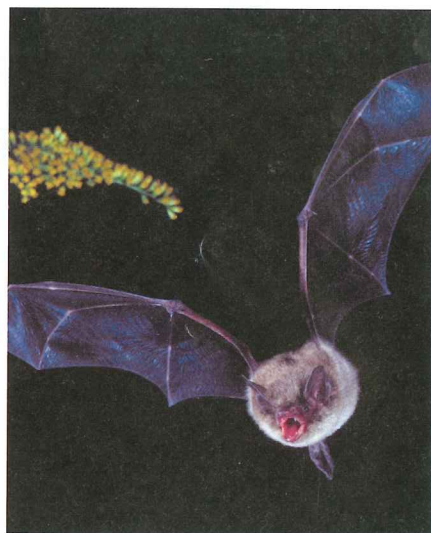
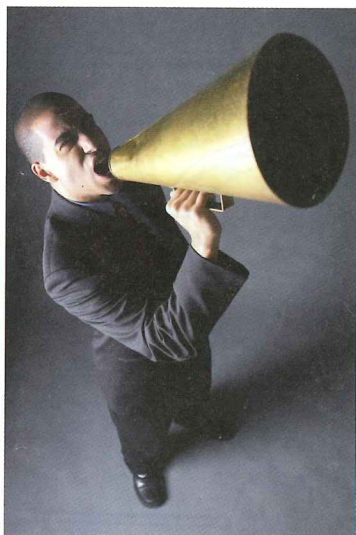




## Sound Energy

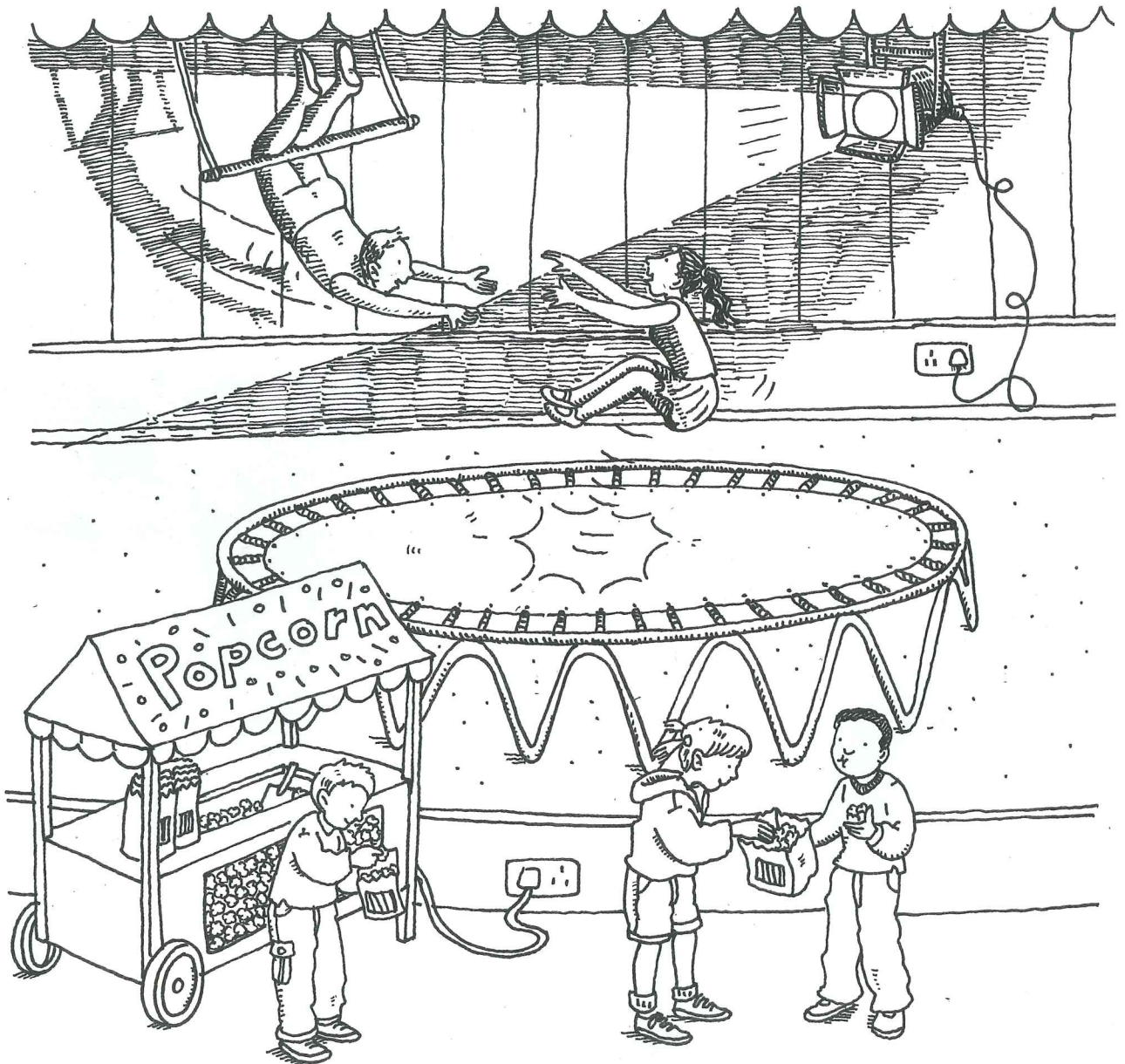
Sound energy is the energy carried by sound waves. Here are some of the ways we depend on sound energy:

- Sound energy moves the tiny bones in our ear, allowing us to hear.
- Sound energy is used to peer inside the body during ultrasound examinations.
- Instruments vibrate to produce the sound energy that brings music to our ears.
- Bats use high-pitched sound energy vibrations for echolocation of their insect prey. Bat echolocation means fewer insect pests feeding on our crops.

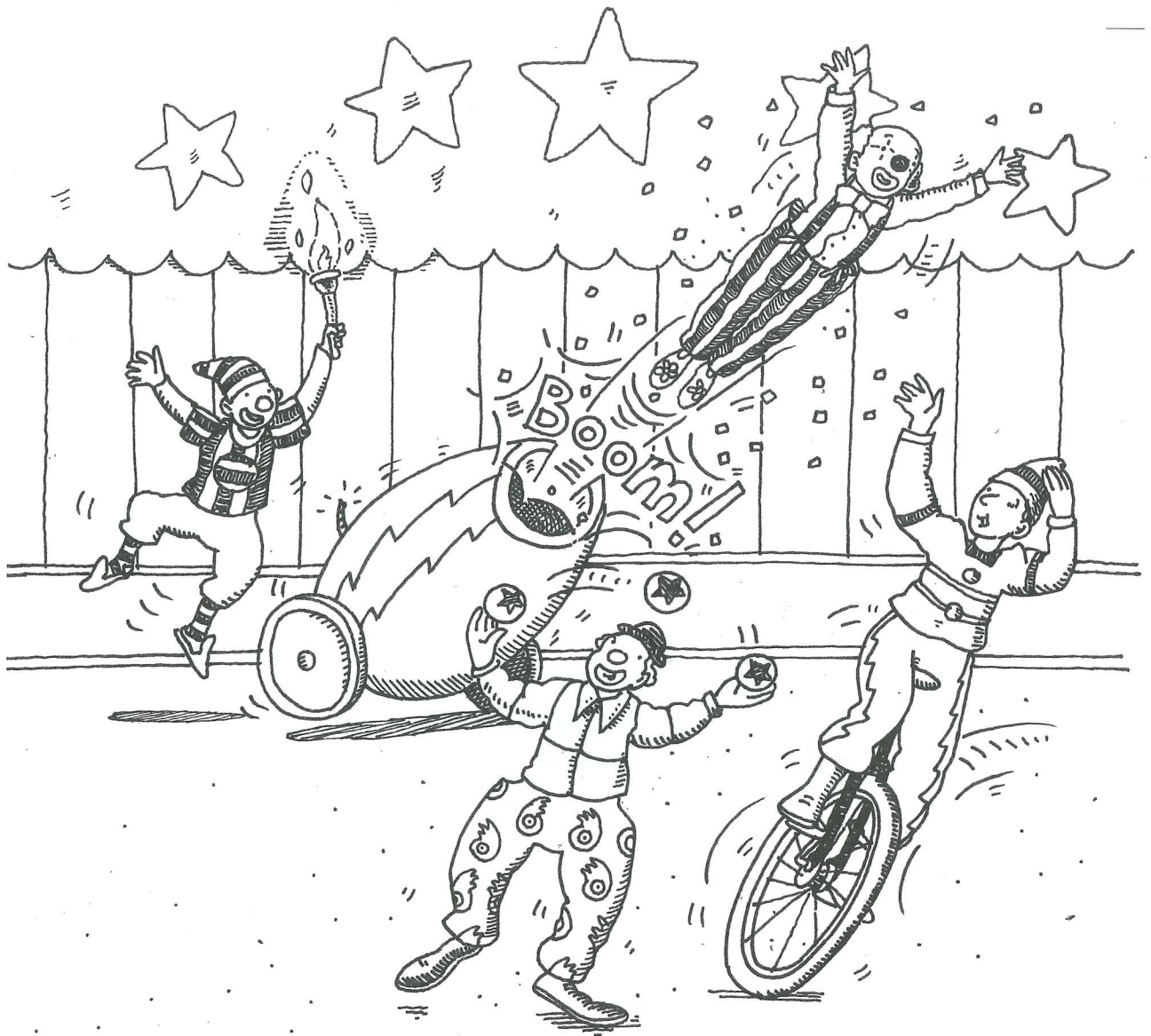


## Energy Makes Things Happen

Look around you! There are many forms of energy at work.







### Energy Challenge

Energy makes the circus an exciting place. Try to find examples of eight different energy forms at work in the circus scene.